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10/087,558	02/28/2002	Ross S. Dando	MI22-1940	2179

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EXAMINER	
ZERVIGON, RUDY	
ART UNIT	PAPER NUMBER
1792	
MAIL DATE	DELIVERY MODE
04/02/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/087,558	DANDO ET AL.	
	Examiner	Art Unit	
	Rudy Zervigon	1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 January 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *45-47,49-51 and 54-61* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *45-47,49-51 and 54-61* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/24/2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114 was filed in this application after a decision by the Board of Patent Appeals and Interferences, but before the filing of a Notice of Appeal to the Court of Appeals for the Federal Circuit or the commencement of a civil action. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on January 24, 2008 has been entered.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 45-47, 49-51, and 54-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Srivastava; Asem K. (US 6,225,745 B1) in view of Onda; Shinzaburo et al. (US 5,395,482 A). Srivastava is discussed above. Srivastava's gas stream on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) feeding to Srivastava's purge gas inlet through a single-inlet valve (any one of 36; Figure 1b), and a structure (51) on the body (10b; Figure 1b; column 3; lines 20-44) configured to mount the body (10b; Figure 1b; column 3; lines 20-44) to a substrate processing chamber (16; Figure 1b) with the plenum chamber (inherent - needed to convey gases in 38) outlet (51) proximate to and connected with a substrate processing chamber (16; Figure 1b) inlet (51) – claim 45. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) wherein Srivastava's structure (interface box between 34 and 38; Figure 1b) is

configured to mount Srivastava's body (10b; Figure 1b; column 3; lines 20-44) to a substrate processing chamber (16; Figure 1b) with Srivastava's longitudinal axis (axis of left-most piping 38 of 12; Figure 1b) being substantially vertical – claim 49. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) wherein Srivastava's structure (interface box between 34 and 38; Figure 1b) comprises a projection on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) - claim 50. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) wherein Srivastava's structure (interface box between 34 and 38; Figure 1b) comprises a projection on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) – claim 56. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) wherein Srivastava's structure (interface box between 34 and 38; Figure 1b) comprises a projection on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) – claim 59. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) wherein Srivastava's plenum chamber (inherent - needed to convey gases in 38) purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) is on Srivastava's longitudinal axis (axis of left-most piping 38 of 12; Figure 1b) – claim 61.

Srivastava does not teach:

i. A reactive precursor feeding manifold assembly (12; Figure 1b; column 3; lines 20-44), comprising; an elongate body (10b; Figure 1b; column 3; lines 20-44) comprising an elongate plenum chamber (inherent - needed to convey gases in 38), Srivastava's plenum chamber (inherent - needed to convey gases in 38) having a longitudinal axis (axis of left-most piping 38 of 12; Figure 1b), Srivastava's plenum chamber (inherent - needed to convey gases in 38) having a first longitudinal axis end (bottom of left-most piping 38; Figure 1b) and a second longitudinal axis end (top of left-most piping 38; Figure 1b);

Srivastava's plenum chamber (inherent - needed to convey gases in 38) comprising a plurality of precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b) received along Srivastava's longitudinal axis (axis of left-most piping 38 of 12; Figure 1b); respective precursor feed streams (any of Srivastava's first five, from top to bottom, gas streams feeding into Srivastava's body) on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) feeding to Srivastava's plenum chamber (inherent - needed to convey gases in 38) precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b), Srivastava's respective precursor feed streams (any of Srivastava's first five, from top to bottom, gas streams feeding into Srivastava's body) including an elongated segment (piping for gas feeding connections to left-most pipe 38; Figure 1b) joining with its plenum chamber (inherent - needed to convey gases in 38) precursor inlet and which is oriented substantially normal to Srivastava's longitudinal axis (axis of left-most piping 38 of 12; Figure 1b); respective multi-inlet valves positioned proximate Srivastava's body (10b; Figure 1b; column 3; lines 20-44) in Srivastava's respective precursor feed streams (any of Srivastava's first five, from top to bottom, gas streams feeding into Srivastava's body), the respective multi-inlet valves having at least two valve inlets and at least one valve outlet, one of the valve inlets being configured for connection with a reactive precursor source, another of the valve inlets being configured for connection with a purge gas line; a purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) to Srivastava's plenum chamber (inherent - needed to convey gases in 38) at Srivastava's first longitudinal axis end (bottom of left-most piping 38; Figure 1b) and upstream of all precursor inlets (gas feeding connections to left-most pipe 38; Figure 1b)

to Srivastava's plenum chamber (inherent - needed to convey gases in 38); a purge gas stream (sixth, from top to bottom, gas stream feeding into Srivastava's body) on Srivastava's body (10b; Figure 1b; column 3; lines 20-44) feeding to Srivastava's purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) through a single-inlet valve (any one of 36; Figure 1b), Srivastava's purge gas stream (sixth, from top to bottom, gas stream feeding into Srivastava's body) including an elongated segment (piping for gas feeding connections to left-most pipe 38; Figure 1b) joining with Srivastava's purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) and which is substantially aligned on Srivastava's longitudinal axis (axis of left-most piping 38 of 12; Figure 1b); and Srivastava's body (10b; Figure 1b; column 3; lines 20-44) comprising a plenum chamber outlet (outlet portion, not labeled, of Srivastava's body) at Srivastava's second longitudinal axis end (top of left-most piping 38; Figure 1b) configured to connect with a substrate processing chamber (16; Figure 1b), the respective multi-inlet valves when the body (10b; Figure 1b; column 3; lines 20-44) is so mounted all being totally received within peripheral lateral confines of said chamber housing of the substrate processing chamber (16; Figure 1b) - claim 45

ii. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 45 wherein the multi-inlet valves have only two inlets and only one outlet, as claimed by claim 46

iii. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 45 wherein Srivastava's structure (interface box between 34 and 38; Figure 1b) comprises a flange, as claimed by claim 51

iv. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 45 wherein Srivastava's plenum chamber (inherent - needed to convey gases in 38) purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) is on Srivastava's longitudinal axis (axis of left-most piping 38 of 12; Figure 1b), as claimed by claim 54

v. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 45 wherein, the multi-inlet valves have only two inlets and only one outlet; Srivastava's another valve (any one of 36; Figure 1b) inlet is upstream of Srivastava's one valve (any one of 36; Figure 1b) inlet; and Srivastava's plenum chamber (inherent - needed to convey gases in 38) purge gas inlet (sixth, from top to bottom, gas stream feeding into Srivastava's body) is on Srivastava's longitudinal axis (axis of left-most piping 38 of 12; Figure 1b), as claimed by claim 55

vi. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 55 wherein Srivastava's structure (interface box between 34 and 38; Figure 1b) comprises a flange, as claimed by claim 57

vii. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 45 wherein, the multi-inlet valves have only two inlets and only one outlet; Srivastava's another valve (any one of 36; Figure 1b) inlet is upstream of Srivastava's one valve (any one of 36; Figure 1b) inlet; and Srivastava's structure (interface box between 34 and 38; Figure 1b) being configured to mount Srivastava's body (10b; Figure 1b; column 3; lines 20-44) to a substrate processing chamber (16; Figure 1b) with Srivastava's longitudinal

axis (axis of left-most piping 38 of 12; Figure 1b) being substantially vertical, as claimed by claim 58

viii. Srivastava's manifold assembly (12; Figure 1b; column 3; lines 20-44) of claim 58 wherein Srivastava's structure (interface box between 34 and 38; Figure 1b) comprises a flange, as claimed by claim 60

Onda teaches:

ix. A reactive precursor feeding manifold assembly (40; Figure 3), comprising; an elongate body (41a; Figure 3) comprising an elongate plenum chamber (inherent - needed to convey gases in 41a), Onda's plenum chamber (inherent - needed to convey gases in 41a) having a longitudinal axis (axis of 41a; Figure 3), Onda's plenum chamber (inherent - needed to convey gases in 41a) having a first longitudinal axis end (bottom 41a; Figure 3) and a second longitudinal axis end (top of 41a; Figure 3); Onda's plenum chamber (inherent - needed to convey gases in 41a) comprising a single inlet received along Onda's longitudinal axis (axis of 41a; Figure 3); respective precursor feed streams (70/71; Figure 2) on Onda's body (41a; Figure 3) feeding to Onda's plenum chamber (inherent - needed to convey gases in 41a) precursor inlet, Onda's respective precursor feed streams (70/71; Figure 2) including an elongated segment (piping for gas feeding connections to 70/71; Figure 3) joining with its plenum chamber (inherent - needed to convey gases in 41a) precursor inlet and which is oriented substantially normal to Onda's longitudinal axis (axis of 41a; Figure 3); respective multi-inlet valve (V49; Figure 3) positioned proximate Onda's body (41a; Figure 3) in Onda's respective precursor feed streams (70/71; Figure 2), the respective multi-inlet valve (V49; Figure 3) having at least

two valve inlets and at least one valve outlet, one of the valve inlets being configured for connection with a reactive precursor source (50; Figure 2), another of the valve inlets being configured for connection with a purge gas line; a purge gas inlet to Onda's plenum chamber (inherent - needed to convey gases in 41a) at Onda's first longitudinal axis end (bottom 41a; Figure 3) and upstream of all precursor inlet 49; Figure 3) to Onda's plenum chamber (inherent - needed to convey gases in 41a); Onda's purge gas stream including an elongated segment (piping for gas feeding connections to 70/71; Figure 3) joining with Onda's purge gas inlet and which is substantially aligned on Onda's longitudinal axis (axis of 41a; Figure 3); and Onda's body (41a; Figure 3) comprising a plenum chamber outlet (outlet portion, not labeled, of Onda's body) at Onda's second longitudinal axis end (top of 41a; Figure 3) configured to connect with a processing chamber (below 41a; Figure 3) - claim 45. Applicant's claim of gas identity as being "purge gas" or "precursor gas" is a claim requirement of intended use of the pending apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter, 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey,152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02).

x. Onda's manifold assembly (40; Figure 3) of claim 45 wherein the multi-inlet valve (V49; Figure 3) have only two inlets and only one outlet, as claimed by claim 46

xi. Onda's manifold assembly (40; Figure 3) of claim 48 wherein Onda's structure (41a/41b interface; Figure 3) comprises a flange, as claimed by claim 51

xii. Onda's manifold assembly (40; Figure 3) of claim 45 further comprising structure (41a/41b interface; Figure 3) on Onda's body (41a; Figure 3) configured to mount Onda's body (41a; Figure 3) to a processing chamber (below 41a; Figure 3) with Onda's plenum chamber outlet (outlet portion, not labeled, of Onda's body) proximate to and connected with a processing chamber inlet (42; Figure 3), the respective multi-inlet valve (V49; Figure 3) when Onda's body (41a; Figure 3) is so mounted being at least partially received within peripheral lateral confines of a chamber housing of Onda's processing chamber (below 41a; Figure 3), as claimed by claim 52

xiii. Onda's manifold assembly (40; Figure 3) of claim 52 wherein the multi-inlet valve (V49; Figure 3) when Onda's body (41a; Figure 3) is so mounted are totally received within peripheral lateral confines of said chamber housing of the substrate processing chamber (below 41a; Figure 3), as claimed by claim 53

xiv. Onda's manifold assembly (40; Figure 3) of claim 45 wherein Onda's plenum chamber (inherent - needed to convey gases in 41a) purge gas inlet is on Onda's longitudinal axis (axis of 41a; Figure 3), as claimed by claim 54

xv. Onda's manifold assembly (40; Figure 3) of claim 45 wherein, the multi-inlet valve (V49; Figure 3) have only two inlets and only one outlet - claim 55

xvi. Onda's manifold assembly (40; Figure 3) of claim 55 further comprising structure (41a/41b interface; Figure 3) on Onda's body (41a; Figure 3) configured to mount Onda's body (41a; Figure 3) to a processing chamber (below 41a; Figure 3) with Onda's plenum

chamber outlet (outlet portion, not labeled, of Onda's body) proximate to and connected with a processing chamber inlet (42; Figure 3), and wherein Onda's structure (41a/41b interface; Figure 3) comprises a flange, as claimed by claim 57

xvii. Onda's manifold assembly (40; Figure 3) of claim 45 wherein, the multi-inlet valve (V49; Figure 3) have only two inlets and only one outlet; structure (41a/41b interface; Figure 3) on Onda's body (41a; Figure 3) configured to mount Onda's body (41a; Figure 3) to a processing chamber (below 41a; Figure 3) with Onda's plenum chamber outlet (outlet portion, not labeled, of Onda's body) proximate to and connected with a processing chamber inlet (42; Figure 3), Onda's structure (41a/41b interface; Figure 3) being configured to mount Onda's body (41a; Figure 3) to a processing chamber (below 41a; Figure 3) with Onda's longitudinal axis (axis of 41a; Figure 3) being substantially vertical, as claimed by claim 58

xviii. Onda's manifold assembly (40; Figure 3) of claim 58 wherein Onda's structure (41a/41b interface; Figure 3) comprises a flange, as claimed by claim 60

It would have been obvious to one of ordinary skill in the art at the time the invention was made to make integral any of Srivastava's valves (any one of 36; Figure 1b) with Onda's 3-way valve (V49; Figure 3) and add a flange portion to Srivastava's body (10b; Figure 1b; column 3; lines 20-44) as taught by Onda.

Further, it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the Srivastava's pipe lengths such that Onda's respective multi-inlet valves (V49; Figure 3) when Srivastava's body (10b; Figure 1b; column 3; lines 20-44) is so

mounted all being totally received within peripheral lateral confines of said chamber housing of Srivastava's substrate processing chamber (16; Figure 1b)

Motivation to make integral any of Srivastava's valves with Onda's 3-way valve is for reducing material costs by combining three valves into one, while motivation to add a flange portion to Srivastava's body as taught by Onda is for creating a hermetic seal between Srivastava's body and Srivastava's processing chamber and the exterior environment as taught by Onda (column 7; lines 54-61). Further, it is established that the use of a one piece construction instead of interconnected components is obvious (In re Larson, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965), MPEP 2144.04).

It is well established that changes in apparatus dimensions are within the level of ordinary skill in the art.(Gardner v. TEC Systems, Inc. , 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied , 469 U.S. 830, 225 USPQ 232 (1984); In re Rose , 220 F.2d 459, 105 USPQ 237 (CCPA 1955); In re Rinehart, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); See MPEP 2144.04)

Response to Arguments

4. Applicant's arguments filed January 24, 2008 have been fully considered but they are not persuasive.

5. Applicant states:

"

As combined Srivastava and Onda fail to disclose or suggest the claim 45 recited manifold assembly comprising a plenum chamber having plurality of precursor inlets received along the longitudinal axis with respective precursor feed streams on the body feeding to the plenum chamber precursor inlets and having respective multi-inlet valves positioned proximate the body

in the respective precursor feed streams, the respective multi-inlet valves all being totally received within peripheral lateral confines of said chamber housing of a substrate processing chamber. Claim 45 is therefore not rendered obvious by the combination of Srivastava and Onda and is allowable over these references.

"

In response, the Examiner notes that besides Onda teaching the respective multi-inlet valve (V49; Figure 3) when Onda's body (41a; Figure 3) is so mounted being at least partially received within peripheral lateral confines of a chamber housing of Onda's processing chamber (below 41a; Figure 3), the Examiner notes that a new ground of rejection based on the proposed obviousness of optimizing pipe length is proposed. Such a change is believed to be within the level of ordinary skill in the art and based on numerous probable motivations including increasing flow conductance and reducing material costs.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (571) 272-1442. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official fax phone number for the 1792 art unit is (571) 273-8300. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (571) 272-1700. If the examiner can not be reached please contact the examiner's supervisor, Parviz Hassanzadeh, at (571) 272-1435.

/Rudy Zervigon/

Primary Examiner, Art Unit 1792

Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination	
	10/087,558	DANDO ET AL.	
	Examiner	Art Unit	
	Rudy Zervigon	1792	